

Amendments to the Specification

Please amend the paragraph beginning on page 1, line 2, as follows:

This application claims the benefit under 35 U.S.C. Section 119(e) to Provisional Application No. 60/173,614, filed December 29, 1999, the contents of which are incorporated herein by ~~reference~~reference.

Please amend the paragraph beginning on page 2, line 3, as follows:

In response to these deficiencies, the cellular industry has turned to the aid of electromagnetic coverage prediction tools to assist in the search for holes in the coverage. Typically, such methods of monitoring system performance include observing downlink information along with other system parameters. The term "downlink" ~~meaning~~means signals ~~travelling~~traveling from the cell site to the mobile unit and the term "uplink" meaning~~means~~ signals ~~travelling~~traveling from the mobile unit to the cell site. Observing the downlink connection provides evidence of the status of the uplink connection. The assumption is that if the downlink was closed (i.e., a good connection was attained), the available uplink power would be sufficient to close the uplink.

Please amend the paragraph beginning on page 3, line 14, as follows:

Another aspect of the present invention includes a system for monitoring performance of a wireless ~~system, this~~system. This system comprises: a plurality of wireless devices which transmit communications signals to a radio base station; a first means for receiving the communication signals and transmitting the communication signals to a switch; a second means for monitoring the communication signals and transmitting timestamp data associated with the communication signals to the switch; and a system analyzer coupled to the switch which evaluates the performance of the wireless system based on uplink performance parameters and the location of the wireless device.

Please amend the paragraph beginning on page 6, line 3, as follows:

Other means to determine wireless device location may include providing part of a GPS receiver with the handset; using a TDOA technique to measure data at the handset rather than

switch ~~19~~18; and using RF finger printing wherein the dispersion characteristics of the radio signal are used to determine location. Therefore, the specific manner of determining the location of the wireless device 12 is not important or limiting in the present invention.

Please amend the paragraph beginning on page 6, line 8, as follows:

The switch 18 collects the call data and the timestamp information and forwards the call data directly over a standard link 21 to a base unit 27. The base unit 27 may or may not be located at the switch ~~18 and 18~~, and link 21 may, for example, be a voice line or a Local Area Network (LAN). The ~~base 27 unit~~base unit 27, using a system analyzer 29 such as a personal computer (PC), performs call data and location data analysis.

Please amend the paragraph beginning on page 7, line 9, as follows:

Currently, the call data collected at the switch 18 contains almost all of the important information about the parameters of a call but cannot provide the current location of the wireless devices 12 that are being monitored to determine where a problem in coverage is occurring. Without the location of the wireless device much of the data collected is irrelevant. An example of an electromagnetic diagnostic tool which incorporates location information in the analysis is found in U.S. Patent Application Serial No. ~~08/996,486, filed on December 23, 1997~~No. 6,603,966, commonly assigned and which is hereby incorporated by reference. This diagnostic tool features a PC equipped with a global positioning satellite (GPS) system which transmits location data of the wireless device while a call is in progress. However, this is an expensive and inefficient system because it requires a PC separate from the wireless device and allows for only one call to be analyzed at a time.

Please amend the paragraph beginning on page 7, line 20, as follows:

In the preferred embodiment, also located near the switch 18, is a TDOA Location Processor 25. The TDOA Location Processor may be an array of digital signal processors that perform all of the location processing for an entire cellular system. TDOA and geolocation algorithms monitor an entire wireless network. The timestamp differences are collected from the switch 18 through link 23a and are calculated to geometrically form hyperbolae that then intersect at or near the true location of the wireless device. The location information is then

forwarded to the PC 2229 through link 23b where analysis is performed matching the location of the wireless device with the call data parameters to monitor performance of the cell. The performance may then be analyzed and adjustments to the cell site may be made. For example, adjustments include changing the down tilt of the antenna 17 to take energy off the horizon or increasing or decreasing the power of the antenna. System evaluators have agreed on certain goals that must be achieved by the system parameters such as a specific set of RSSI level break points, BER thresholds forward and reverse, etc., that are a requirement for a cell site. The mobile communications analysis of the preferred embodiment may be used to expedite service improvements and to determine future build plans.

Please amend the paragraph beginning on page 8, line 22, as follows:

Variations on the method shown in figure 3 include evaluating the performance of the wireless system ~~is performed~~ in real-time and collecting the location information of the wireless device from a plurality of radio base stations. Furthermore, there may be variations in how the step of obtaining the location information (54) is carried out. For example, obtaining location information may further comprise analyzing timestamp data or may involve using a TDOA Location Processor.

Please amend the paragraph beginning on page 9, line 5, as follows:

The method according to an aspect of the present invention may ~~involved~~involve transmitting communication signals from either a single wireless device 12 or from a plurality of wireless devices. If a plurality of wireless devices 12 ~~transmit~~transmits communication signals, then the remaining steps in the method aspect of the invention also operate accordingly. For example, the uplink performance parameters (52) are obtained for all the communication ~~signals and signals~~, the location information for all the wireless devices is obtained ~~(54) and (54)~~, and (54), and the evaluation of the performance of the wireless system using the uplink performance parameters and the location information is performed for each of the plurality of wireless devices.